

Patent Claims

1. Device for abrasive machining of surfaces of components, comprising

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- a tool having an inlet and an outlet;
 - a supply unit for conveying to the inlet a liquid in which abrasive agents are dissolved and which emerges from the outlet; and
 - a positioning means which guides the tool across a surface to be machined, and simultaneously positions said tool in such manner
- 10 that the outlet faces the surface to be machined, an area of an annular gap defined by boundary walls of the outlet and the surface to be machined being smaller than a cross-sectional area of the inlet.

- 15 2. Device according to claim 1, characterized in that the cross-sectional area of the inlet is greater by a factor of at least 5 than the cross-sectional area of the formed annular gap.

- 20 3. Device according to claim 1 or 2, characterized in that a height of the formed annular gap is smaller than 3 mm and preferably is about 1 mm.

- 25 4. Device according to any one of claims 1 to 3, characterized in that a rotary unit is provided for rotating a component to be machined around an axis.

- 30 5. Device according to any one of claims 1 to 4, characterized in that the outlet has a circular cross-section, and that the tool has a cylindrical outer contour at least in the region of the outlet.

6. Device according to any one of claims 1 to 5,
characterized in that the cross-sectional area of the inlet is smaller than
that of the outlet.
- 5 7. Device according to any one of claims 1 to 6,
characterized in that the supply unit conveys the liquid under a pressure
smaller than 20 bar, preferably smaller than 5 bar.
- 10 8. Device according to any one of claims 1 to 7,
characterized in that for machining plane surfaces, an outer diameter of the
tool in a region of the outlet is of an order of magnitude of one half of an
aperture of an optical component.
- 15 9. Device according to any one of claims 1 to 7,
characterized in that for machining curved surfaces, an outer diameter of
the tool is of an order of magnitude of a smallest radius of the surface.
- 20 10. Device according to any one of claims 1 to 9,
characterized in that the positioning means comprises a control unit for
controlling a positioning of the tool according to surface data of a surface to
be produced.
11. Use of a device of any one of claims 1 to 10 for grinding optical surfaces.
- 25 12. Use of a device of any one of claims 1 to 10 for polishing optical surfaces.
13. Use of a single device of any one of claims 1 to 10 for first grinding, and
subsequently polishing an optical surface.
- 30 14. Use of a device of any one of claims 1 to 10 for machining aspherical sur-
faces.